

## Resumé

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## Research Expertise

- Determining structural, electronic and optical properties of clusters and surfaces using *first-principles* techniques based on *density functional theory*, its time dependent extensions and *many-body perturbation* methods
- Debugging and analyzing massively parallel code running in the exascale and writing code in *Fortran 90*, *Fortran 77*, *C* and *C++* employing various numerical methods. Maintaining and building HPC clusters.

## Education

2005-2013	<b>Ph.D. in Physics</b> University of Illinois at Chicago, Chicago IL
2004	Joint CSIR-UGC National Eligibility Test (NET)
2001-2003	<b>M.Sc. in Physics</b> ( <i>First Class with 67.0% of marks</i> ) St. Stephen's College, University of Delhi, Delhi, India
1998-2001	<b>B.Sc. in Physics</b> ( <i>First Class with 69.3% of marks</i> ) St Stephen's College, University of Delhi, India
1998	<b>Higher Secondary Examination (science)</b> ( <i>First Divison with 79.4% of marks</i> ) Darrang College, Tezpur, ASSAM, INDIA
1996	<b>High School Leaving Certificate Examination</b> ( <i>First Divison with 82.9% of marks</i> ) Tezpur Government Higher Secondary School, ASSAM, INDIA

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## Research Experience

2010-2013	<b>Optical properties of nano-systems using <i>many-body theories</i>, UIC</b> Studies of optical properties of nano-systems including $TiO_2$ nano-crystals, organic molecules for dye sensitized solar cells and transition metal atoms and ions.
2009-2010	<b>Optical properties of Cu clusters, UIC</b> Studies of optical properties of small to medium sized Cu clusters using <i>Time Dependent Density Functional Theory</i> and <i>GWSE theory</i> .
2007-2009	<b>Optical properties of Ag clusters, UIC</b> Investigation of Optical properties of medium sized Ag clusters by <i>Time Dependent Density Functional Theory</i> and comparison with experiments.
2007-2007 Summer	<b>Catalytic <math>Fe - xN</math> sites on carbon nanotubes, Argonne National Laboratory, IL</b> Investigation of the structure and energetics of $Fe - xN$ incorporated into carbon nanotubes and graphene using <i>FirstPrinciples</i> calculations

## Publications

- "Benchmarking the GW-Approximation and Bethe-Salpeter Equation for Groups IB and IIB Atoms and Monoxides," Linda Hung, Fabien Bruneval, Kopinjol Baishya, Serdar Ogut. Journal of Chemical Theory and Computation, **13**, 5 (2017)
- "A First Principles Real Space study of Electronic and Optical excitations in Rutile  $\text{TiO}_2$  Nanocrystals," Linda Hung, Kopinjol Baishya, Serdar Ogut, Phys. Rev. B **90**, 16524 (2014)
- "First principles absorption spectra of  $\text{Cu}_n$  ( $n = 2 - 20$ ) clusters," Kopinjol Baishya, Juan C. Idrobo, Serdar Ogut, Mingli Yang, Koblar A. Jackson and Julius Jelinek, Phys. Rev. B **21629**, 245402 (2011)
- "Catalytic Fe-xN sites in Carbon Nanotubes," Alexey Titov, Peter Zapol, Petr Kral, Di-Jia Liu, Hakim Iddir, Kopinjol Baishya, and Larry A. Curtiss, Journal of Physical Chemistry C, **113**, 52 (2009)
- "Optical Absorption Spectra of intermediate-sized Ag clusters from First Principles," Kopinjol Baishya, Juan C. Idrobo, Serdar Ogut, Mingli Yang, Koblar A. Jackson and Julius Jelinek, Phys. Rev. B **78**, 075439 (2008)
- "Brownian Motion: Theory and Experiment, A Classroom Measurement of the Diffusion Coefficient," Resonance, 8, 3 (2003)

## Employment

2015-2022	<b>Assistant Professor</b> , Handique Girls' College, Guwahati, Assam. Teaching Higher-Secondary and Undergraduate Classes.
2013-2014	<b>Post Doctoral Fellow</b> Case Western Reserve University, Cleveland OH. Working on research projects on Perovskites and defects in solids using Linear Muffin-Tin Orbital Method.
2007-2013	<b>Research Assistant</b> , University of Illinois at Chicago, IL Working on research projects mentioned above.
Summer 2007	<b>Research Assistant</b> , Argonne National Laboratory, Argonne, IL
2005-2013	<b>Teaching Assistant in Physics</b> , University of Illinois at Chicago, IL Assisted and instructed students in classroom and laboratory setting, graded lab reports, exams and homework, tutored undergraduate students.

## Professional Memberships and Workshops/Schools

2009-2013	American Physical Society, member.
2011	"5 <sup>th</sup> Time Dependent Density Functional Theory: Prospects and Applications," January 2012, Centro de ciencias de Benasque Pedro Pascual, Benasque, Spain.

## References

Prof. Serdar Ogut Department of Physics University of Illinois at Chicago Phone: (312) 413-2786 ogut@uic.edu	Robert F. Klie Department of Physics University of Illinois at Chicago Phone (312) 996-6064 rfk@uic.edu	Juan C. Idrobo Vanderbilt University and Oak Ridge National Laboratory Phone: (312) 933-2350 juan.idrobo@vanderbilt.edu
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